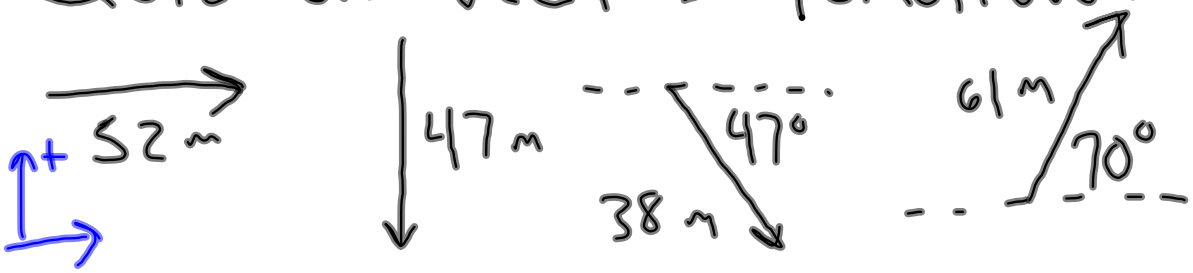
Quiz on Vectors tomorrow!



$A_x = 52\text{ m}$

$B_x = 0\text{ m}$

$C_x = (38\text{ m})\cos(47°)$

$+\ D_x = (61\text{ m})\cos(70°)$

$E_x = 98.8\text{ m}$

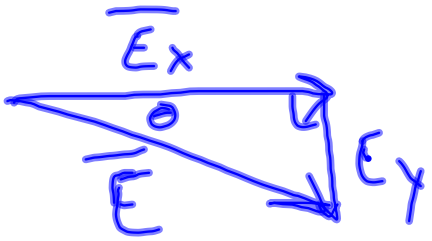
$A_y = 0\text{ m}$

$B_y = -47\text{ m}$

$C_y = -(38\text{ m})\sin(47°)$

$+\ D_y = (61\text{ m})\sin(70°)$

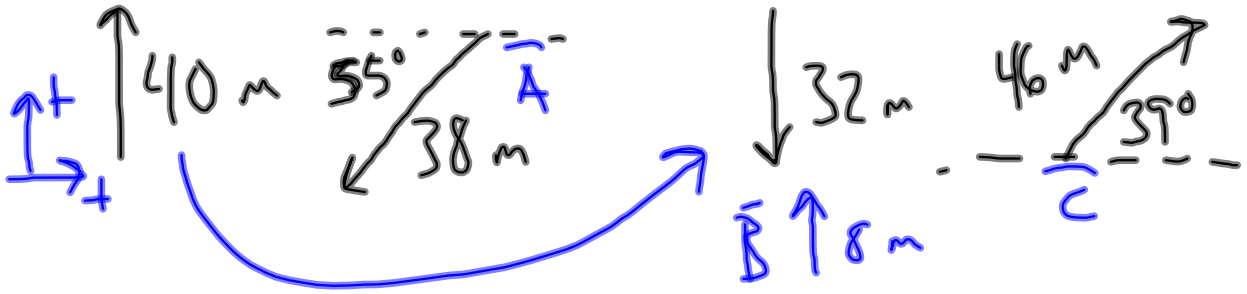
$E_y = -17.5\text{ m}$



$E = 100.3\text{ m}$

$\theta = 10°$ S of E

$\vec{E} = 100.3\text{ m}\ @\ 10°$ S of E

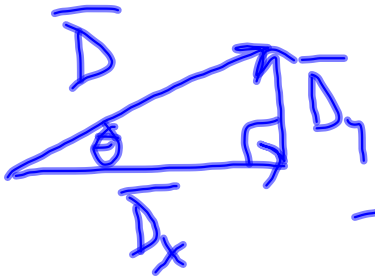


$A_x = -(38\text{ m})\cos(55°)$ $A_y = -(38\text{ m})\sin(55°)$

$B_x = 0\text{ m}$ $B_y = 8\text{ m}$

$+C_x = (46\text{ m})\cos(39°)$ $+C_y = (46\text{ m})\sin(39°)$

$D_x = 14.0\text{ m}$ $D_y = 5.82\text{ m}$



$D = 15.2\text{ m}$

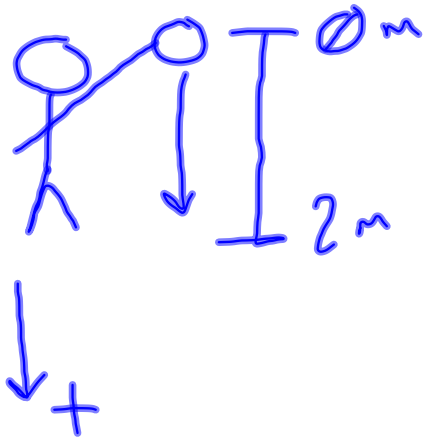
$\theta = 22.6°$ N of E

$\vec{D} = 15.2\text{ m}$ @ 22.6° N of E

Free-fall:

- In the y-direction
- Only acceleration is due to gravity
- $a_g = g = 9.8\ m/s^2$

Jason drops a volleyball from 2.0 m above the floor. How long will it take before the ball hits the ground?



$a_g = 9.8\ m/s^2 \quad V_i = 0\ m/s$

$\Delta y = \cancel{V_i t}^{0} + \frac{1}{2} a_g t^2$

$t = \sqrt{\frac{2\Delta y}{a_g}}$

$= \sqrt{\frac{2(2\ m)}{9.8\ m/s^2}}$

$= 0.639\ s$

Jason then hits the volleyball so that it moves with an initial velocity of 6.0 m/s straight up.
- What is the maximum height that the ball reaches?
- How long does it take to reach the maximum height?
- How long does it take for the ball to reach the floor?